DOCUMENT RESUME

ED 224 477 IR 010 532

TITLE	Cable TV: Now What?
INSTITUTION	Ohio Educational Library/Media Association, Columbus.
PUB DATE	82
NOTE	26p.
PUB TYPE	Guides - Non-Classroom Use (055)
EDRS PRICE	MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS	*Cable Television; Case Studies; Closed Circuit Television; *Educational Television; Elementary Secondary Education; *Facility Inventory; Glossaries; Production Techniques; *Program Implementation; *Video Equipment
IDENTIFIERS	*Franchising

ABSTRACT

Designed to aid in planning the best use of cable television in a particular educational situation, this pamphlet was prepared by a joint committee of the Ohio Educational Library Media Association and the Greater Miami Valley Instructional Television Council in order to share their plans, experiences, problems, and solutions with others who are using or planning to use cable casting. The first section discusses cable television franchises, local production, and technical considerations; defines cable television; and suggests school uses for cable television. Commonly asked questions concerning program implementation are then answered. To illustrate the varied possibilities for use of cable television by public schools, six case studies are summarized. Appendices outline the fundamentals of the cable franchising process, diagram the franchise procedure, and provide an equipment inventory form. An extensive glossary defines terms relating to cable television and video production, and a 31-item bibliography lists available monographs, ERIC documents, journal articles, videotapes, and related associations. (LMM)

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CABLE TV: NOW WHAT??

Ohio Educational Library Media Association

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CABLE TV NOW WHAT????

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FOREWARD

The Greater Miami Valley Instructional Television Council was formed in part to share knowledge concerning instructional T.V.

Our members involvement, with cable T.V. in particular, varied widely. Some had already begun cable casting programs and others were in areas not yet served by a cable company.

As we shared our plans, experiences, problems and solutions it became apparent that others might find such information useful. This paper is the result of our common questions and experiences. Regardless of whether your franchise is signed or still in question we hope it will be helpful to you in planning for the best use of cable TV in your particular situation.

Cable Implementation Committee,

Cassandra Rogers, Chairperson
Susan Berg
John Vaughn
Greg Vawter

OELMA wishes to thank the above committee which contains 3 members of OELMA and the Greater Miami Valley Instructional Television Council for permission to publish this informative paper on cable television.

CABLE TV NOW WHAT ? ? ? ?

A WORD ABOUT FRANCHISES

If a franchise has been signed, locate a copy and read it.

There is no such thing as a standard franchise. Cable companies are a business and schools are not now a potential source of revenue. Franchise negotiations with respect to schools do vary from school system to school system.

If one has not been signed, it may be possible to negotiate equipment and/or services for your schools. Schools need to be represented on the committees who will be choosing which cable company receives the franchise.

See Appendix A for franchise considerations and a flow chart of the franchising procedures.

WHAT IS CABLE TV?

Community antenna television or CATV began as a method of using one large antenna tower to pick up remote television signals and distribute them via cable to rural communities.

To a school system, cable TV means building antennas are no longer needed. TV signals will be brought into your building via a cable, from trunk lines, usually strung along utility poles. Satellite services and improvements in channel space now provide a wealth of programming never before available. With cable, in addition to the channels you normally receive on your TV sets, there will be channels from other metropolitan areas, some combinations of local origination/government/public and/or educational channels as well as a variety of sports, weather and other specialized programming.

HOW CAN SCHOOLS USE CABLE TV?

Special programs, class activities and projects can be shared with parents and the community at large.

For example, holiday plays, talent shows, style shows, class plays, cooking demonstrations, shop projects, and science lab experiments that are usually part of daytime school activities could be taped and cablecast in the evenings.

Should it be necessary for the administration to communicate live to all schools at the same time cable can provide a means of doing so.

Schools could share the cost of speakers and performers by having them appear in only one school. The others could watch via live TV or several schools could watch at the same time via tape at a later date.

Some channels could be available for summer school, high school equivalency courses, Saturday review courses, and adult education courses. During

school closings, student work assignments could be cablecast. Remember, however, in order for anyone to view your cablecasts, they must be cable subscribers. Community viewing centers, often located in public libraries can provide non-subscribers access to your programming.

Where a central tape library exists, teachers could request programs to be cablecast that very same day to satisfy a need that may have surfaced in a classroom discussion or science discovery on the playground.

Usually, whatever is aired on the educational channel is cablecast not only to the schools, but to the community at large as well. An institutional cable, which is in effect a closed circuit loop, allows a school system or several systems to cablecast within their system alone. For various reasons, such as copyright restrictions or the nature of some inservice programs, an institutional cable may be desireable.

Two way television via cable affords many opportunities. For example, there may be only a few students in any given high school interested in learning the Russian language. A single teacher, not necessarily in any of the school systems could teach all of these students at the same time in their respective buildings. In addition the students would have live communications with the teacher for questions and answers. Highly specialized courses with very few students are not often possible in many school districts.

The future holds vast opportunities for multiple uses of cable we've not yet discussed. Addressable converters make it possible to send specialized programming to a few select designated locations. Digital information, security information, and other types of data can be transmitted two ways using cable. Educators should keep abreast of this technology. Cable may benefit the schools at some later date in ways we cannot yet envision.

WHAT ABOUT LOCAL PRODUCTION?

A polished locally produced program from the planning stages, through script writing, taping and editing can involve many people, many hours and much hard work. This is not to say it isn't a valuable learning experience for all involved or that the end product isn't worth the time and expense.

However, local production on any grand scale does require a certain amount of equipment, personnel with technical expertise and time. There is a great difference between the delayed playback of Friday nights football game and the airing of a teacher produced science program which includes a dynamic science experiment.

TECHNICAL CONSIDERATIONS

Reception:

An inventory of existing equipment should be taken before planning your program.

See Appendix C for a suggested means of doing so.

Production:

Cable casting can be simply achieved with the following: A video tape player, a TV receiver or monitor, and an AV modulator.

If the public access playback center is not located in your schools you will need return or upstream capabilities at some location in your school system.

QUESTIONS ? ? ? ?

1. WHAT EXACTLY IS A "FREE DROP"? After we have one, what do we do with it?

   Most franchises provide 1 free cable TV outlet for each school building ("Drop" refers to the descent from the utility pole). This is not necessarily a return line with cable casting capabilities. If the school has its own internal cable system, the cable drop may be connected to it. Otherwise, the drop site is the only location where cable programming can be received. In this case programs can be recorded at the cable drop for later playback on equipment in the classrooms.

2. SOMEONE ASKED ME, "ARE YOUR BUILDINGS WIRED?" WHAT DO THEY MEAN?

   He/she is asking if your buildings have wiring for a master antenna system that already feeds the signal to most or all the rooms in the building.

3. HOW DOES AN EXISTING MASTER ANTENNA SYSTEM INTERFACE WITH A CABLE DROP?

   By hooking the cable drop to the Master Antenna Systems, cable can be fed throughout the building.

   If you have closed circuit channels in your building, a trapping device would be needed to maintain them.

4. HOW MANY CHANNELS ARE USUALLY AVAILABLE FOR SCHOOL USE?

   At least one and it may be shared with governmental agencies. More may be designated in the franchise or negotiated with the company within the institution itself.

5. WHAT RESPONSIBILITIES DO THE CABLE OPERATORS HAVE REGARDING THE SCHOOLS?

   Operators are responsible solely for services provided through the cable franchise or contact agreement. Operators are generally not obligated to serve schools located outside franchised areas and/or sparsely populated regions.

6. IF WE DO NOT PLAN TO CABLECAST PROGRAMS FROM OUR SCHOOLS, DO WE NEED CABLE TV?

Obviously, each school must determine its own needs. Cable TV is only one of many tools available to assist educators, and priorities will have to be established in each situation for which tools are most valuable there.

If nothing else, you will have good reception for recording "off air," and therefore, eliminate the need for, and maintenance of antenna systems.

Cable can tie the schools directly to resources in the local community. Institutional 2-way loops make direct interaction possible between students and municipal employees, health professionals, and others.

Cable can also tie the schools together, making it possible for speakers to interact with several schools at once. This allows teachers of similar topic areas at different schools to work together and to involve resources from the community. For example, someone from Dayton's Art Institute may take time to discuss his work with art students at four schools at once, even though he could not visit each school individually.

Cable can provide more sources of educational programming. Distant PBS stations may provide ITV programs at more convenient times for taping or classroom viewing. For example, C-SPAN provides live coverage of activity in the federal House of Representatives by satellite. New software resources are being developed for the increasing number of channels new cable systems provide. Some will be useful for education.

7. CAN ANY TAPE FORMAT BE CABLECAST?

With compatible videoplayers, all tapes can be played on cable.

Even though the FCC does not require "broadcast quality" signal on cable, the effect of modulating, amplifying and boosting TV signal along the cable can degrade the signal quality. As a rule, programs recorded on any format slower than BETA II or VHS LP (Long Play) will cablecast with a picture so grainy they are difficult to see.

8. WHAT IS A COMMUNITY ACCESS CENTER?

This is the center set up to allow community members to present programs on cable to their community. Depending on the cable system, the facility can be as simple as a portapak loaned from a closet with one playback machine and a modulator or as involved as a complete operation which programs several channels.

9. WHO CAN RECEIVE PROGRAMS PLAYED BACK FROM SUCH A CENTER?

Only those who have the appropriate cable TV drops.

10. WHERE DOES EQUIPMENT NEEDED IN SUCH A CENTER COME FROM?

This depends totally upon how the center is funded and/or franchised. Sometimes, cable companies are responsible for supply this equipment.

Sometimes, cities provide it from the franchise fees. Other centers have sought grant monies for this purpose.

11. DO SCHOOLS HAVE ACCESS TO THIS EQUIPMENT?

Generally, access equipment is available free or at a minimal charge to anyone showing the ability to use and care for it properly. Sometimes access organizations require their borrowers to complete their own classes, but usually centers are willing to allow users to "test out" of classes.

12. IF THE SCHOOLS' EQUIPMENT IS NOT COMPATIBLE WITH THAT WHICH THE CENTER OWNS, HOW CAN SCHOOLS CABLECAST TAPES?

(1) In some cases, schools can borrow access center equipment each time they desire to record a program they wish to cablecast.

(2) Programs can be copies (dubbed) from one format to another, using one VTR of each type.

(3) Schools can provide their own equipment at the access center.

13. HOW ARE COMMUNITY ACCESS CENTERS STAFFED?

Any way possible!

Some are operated by cable companies. Some are run by cities or groups of cities. Some public service institutions take responsibility for them (e.g. Xenia Library). Non-profit groups sometimes qualify for special funding (CETA, EEOP, etc.) for staff.

14. WHAT CONTROL SHOULD BE EXERCISED OVER CONTENT OF PROGRAMS PUT ON CABLE?

Who is responsible?

The cable company is held responsible, however they may not censor or control access programming. Some community centers form their own advisory boards as a means of self rgulation.

15. WHAT EQUIPMENT IS NEEDED TO CABLECAST PROGRAMS?

(1) To "cablecast" programs, schools must first have access to a return feed of the cable. Equipment necessary is a tape player and an AV modulator. A television set connected to the forward line of the cable will allow you to view the cablecast.

(2) For live cablecasts, the camera and microphone replace the tape player. But an AV Modulator is needed for live programs, too. Again, the TV will be needed for viewing the results. Use your tape recorder if you wish to preserve your program for viewing later.

16. IS A TIME BASE CORRECTER NECESSARY?

Engineers use a TBC to improve small format signals. Other pieces of equipment can do much the same thing. Consult an engineer for your particular situation.

17. HOW CAN WE CABLECAST PROGRAMS TO THE COMMUNITY EVENINGS AND WEEKENDS?

Staff a cablecasting site - either a school or the community access center - during times you need programs played. By sharing resources in a community access center, you may be able to cablecast programs from several interests during one time block, spreading costs. A further savings would be possible if more than one channel could be cablecast from one location. One playback technician can operate two, or even three, channel simultaneously.

Volunteers cannot usually accept responsibility for access centers without insurance or legal difficulties.

18. WILL WE ALSO BE ABLE TO CABLECAST PROGRAMS TO OUR SCHOOL BUILDINGS ONLY?

(1) In most systems the programs are received by all subscribers.

(2) If an institutional loop is available, programs shown on its channels are not necessarily transferred to the subscribers cable.

(3) Programming can be cablecast through a scrambling device on the subscriber cable. This would make the sound and picture unitelligible to anyone who does not pass the received signal through the necessary descrambling unit. However, the cost is usually prohibitive. It may be possible to negotiate with your cable operator for use of mid-band channels. These would require set top convertors similar to those used in 20 and 36 channel subscriber system.

19. WILL WE NEED TO PURCHASE ANY ADDITIONAL EQUIPMENT WITH A FREE DROP?

If you have inadequate broadband amplifiers they may need to be replaced. Set top converters for each TV receiver are sometimes necessary for reception. Whether they are rented, purchased or needed at all varies from one franchise to another.

Other than the above considerations you can continue to make use of TV in whatever manner you were using it prior to the "free drop".

20. WHAT TYPE OF EQUIPMENT WOULD BE NEEDED FOR A "BASIC" STUDIO?

Audio - microphones
Mic mixer

Video - Cameras (with genlock)
Switcher
Monitors

Studio Accessories - Lights,connecting cables, etc.

The following are not essential but you want to add them later:
Editing System
Film - slide chain
Character generator

21. IS A LOCAL ORIGINATION CHANNEL DIFFERENT FROM A COMMUNITY ACCESS CHANNEL?

Local Origination is programmed by the cable operator. The operator's employees control the equipment and actual content of all programs.

Community Access is programming by the community. The public educators, and municipal organizations can learn to use the TV equipment themselves for their own programming.

22. OUR HIGH SCHOOL IS SPREAD OUT OVER 3 BUILDINGS. WILL EACH ONE HAVE A "FREE DROP"?

This depends on the interpretation by the cable company involved.

23. WILL SET TOP CONVERTERS BE NEEDED FOR EACH OF OUR TELEVISION SETS?

Yes, if you intend to receive all the channels broadcast by the cable company.

24. WILL WE NEED TO PURCHASE THESE?

Not necessarily. Arrangements vary with the cable companys involved. Some may be given to you initially, some you may have to rent or purchase. It's also possible that educational programming may be put on the lower bands. i.e. CH 2-13. This eliminates the need for set top converters in order to receive programs on those channels.

WE DID IT!!! CASE STUDIES

These studies are presented, to illustrate the numerous and varied possibilities of cable T.V. use by public schools.

A. In the northern suburbs of Cincinnati the cable franchise worked out an arrangement whereby the "community access" facilities for the cable were to be located in selected schools. These schools were chosen according to their location and space availability. New equipment was furnished to them in return for their "space". The schools have use of the equipment for their own purposes, but must make the facilities available to the public as well.

B. The Hamilton City Schools operate a basic color television facility as part of the vocational broadcast arts program. Cablecasting over channel 11 throughout the city and surrounding cabled township areas, "CC 11" provides delay-taped instructional television programs to the other schools in the system. This also provides evening basketball and sports programs to the home viewers, as well as training for the students in a "real" television situation. Equipment is maintained by the city schools, but a remote-use van with small format color equipment and editing facilities is provided free of charge by the local cable operator.

C. Richmond, Indiana schools make use of a "mid-band" channel (receivable with a special convertor only in schools) to feed an institutional channel throughout the city. A delay-taping and librarying facility holds programming for "on-call" use by schools throughout the cabled area. The community is reachable, however, by way of a channel on the main subscriber system that is made available to the schools on a "time-as needed" basis.

D. In Reading, Pennsylvania, two cable television organizations have been involved in educational use of cable since 1974. School casting is an association of school districts and colleges within Berks County, Pa. using cable TV for educational purposes. BCTU is the interactive (2 way audio and video) programming organization.

Berks Schoolcasting, the county's state ITV region has provided instructional programs directly on cable at times requested by the six public and two parochial school districts. Some of these districts originate their own programming, both within the schools and out to the general public. Interactive cable TV dialogue is possible, through Berks Community TV. BCTV has helped the schools establish intercommunication among themselves and with other community organizations. Regular programs such as **Our Schools** and **The Generation Gap** have used the cable medium to facilitate exchanges of thoughts and ideas between senior citizens and school students.

For more information contact:

Berks County Intermediate Unit 14
2900 St. Lawrence Ave.
Reading, PA 19606
(215) 779-7111
Robert Jackson, Asst. Dir. of IMS

Berks Community Television
1112 Muhlenberg Street
Reading, PA 19602
(215) 374-3065
Jerry Richter, Executive Director

E. The Cable Advisory Board for Learning and Education (CABLE) is a consortium of Spokane, Washington area education institutions who have banded together to operate five educational access channels. The organization includes public and private schools, higher education institutions and public libraries. It is a group concerned with the technology, programming, financing, personnel facilities and promotion for educational access to the Spokane cable system.

Spokane School District programs the channels during school hours. Then four local colleges and universities set the schedule from 3:30 to 9:30 each evening. Most of the funding has been provided by the school district with additional grants for personnel, programming (software) and equipment (hardware) from the Corporation for Public Broadcasting.

For more information: Maureen Hathaway
Cable Programs Manager
KSPS 7 Public Television
Spokane, WA 99203

F. In four short years Fairborn City Schools have developed their use of cable and acquired their own studio. In 1976 they were using cable largely to

cablecast spelling bees, plays and bicentennial activities. Their equipment consisted of 3 VTR's and 2 black and white cameras in the two high schools. Usage was mainly for speech classes, plays and other isolated events.

Later this equipment was used to tape home sports activities, which were also played back over the cable community access channel. These included football and basketball games, a talk show called "Coaches Corner", a volleyball, wrestling, and tennis. An inservice program was produced on "due process" procedures and shown at the same time to all teachers and staff in their respective buildings. This was an efficient means to reach a large number of personnel geographically separated, in a short period of time.

In January 1977 the school system was given a designated channel for instructional TV and a short time later the school system purchased the necessary equipment to get the channel in operation. Now they could broadcast from a site on the school grounds. Prior to this tapes were taken to the community access center in order to have them cablecast.

A "Superintendent Reports" program as well as dramatic and musical activities were added to the growing variety of programming. For an open house each elementary taped every class engaged in some daily activity in the school. Each final edited tape was played back the night of the open house and also replayed later over the school cable channel to the community.

By the fall of 1977, a studio was set up on a stage in an elementary school. The equipment list now included a switcher, 3 more black and white cameras but no special lighting. Two months later the studio moved into a trailer where 2 color cameras and portable lighting were added.

Title IV money was used to purchase a color switcher, an audio mixer, 5 rack mounted monitors in a portable console and a third color camera.

A full time technician was hired to operate the studio and tape activities as needed, all under the supervision of the Director of Media Centers.

In January, 1978 the system purchased a character generator and began using the channel 24 hours a day. Lists of various upcoming events were cablecast. During bad weather, this included school closings, schedules and lists of postponed activities.

In September, 1978 the school system became a member of the Southwestern Ohio Television Association (SOITA). This gave them the legal right to copy most programs for playback at alternate times, a necessity if secondary schools are going to use instructional programming at all.

A school loop channel was obtained to cablecast programs within the school system only, and was easily filled with ever increasing playback requests.

Faculty members began producing their own programs and involving their students as well. Each school, high school, junior high and elementary has a working crew of students. The majority of these locally produced programs are the result of much hard work by student crews and the TV staff during off-school hours.

In 1978 the studio was permanently located in the Bushmeyer Memorial Field House attached to the high school. It has air conditioning, drapes, studio lighting and a separate control room. The initial equipment included 3 color cameras, a complete remote unit with portable lights, 2 black and white cameras and a switcher that can be converted to color.

In 1979, a complete ¾ inch editing console was purchased, along with a time base corrector, a ¾ inch portable camera and VTR, and a ½ inch VHS camera and VTR, for use on remotes.

In the 1979-80 school year, Fairborn students won 3rd place in a national video competition, 2263 individual programs were cablecast to class rooms for VTR use in the class room and 1113 individual evening programs were cablecast. In addition, 27 instructional programs, prepared by their own teachers to best fit their own teaching program have been produced.

Perhaps most valuable of all, is a 3 night a week Fairborn City Schools news program.

FUNDAMENTALS OF CABLE FRANCHISING PROCESS

I. Franchise Procedure

   A. See Diagram

II. What to look for in Cable Operator

   A. Economic Stability

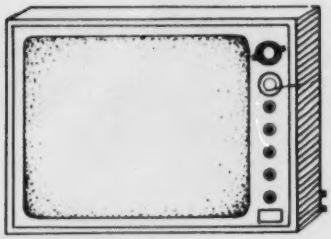
      1. Evidence that capital contributors have resources and will commit them to this system.
      2. Evidence that debt financing is firmly committed.

   B. Telecommunications Experience

      1. Does applicant own or operate cable systems in other cities.
         a. Contact cities for an assessment of cable operators performance.

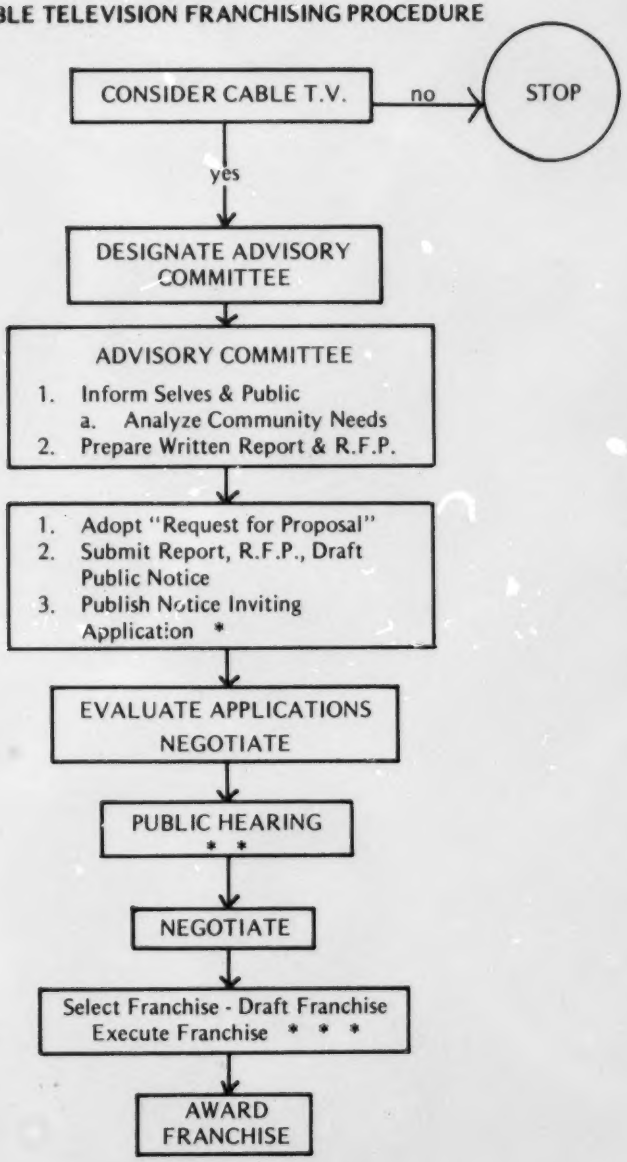
   C. Commitment to the Community Concept of Cable

      1. Cable as more than just an entertainment medium.
      2. Cable as a community resource.



APPENDIX B

CABLE TELEVISION FRANCHISING PROCEDURE



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APPENDIX C

EQUIPMENT INVENTORY

Building. . . . . Number of Teaching Stations. . . . . .

Part I:

. . . . . .TV's Color . . . . . .TV's B & W

Format	Make & Model	Age & Condition	Location

Master Antenna System	. . .yes	. . .no
Closed Circuit Channel in Building	. . .yes	. . .no
Outlets in all Teaching Stations	. . .yes	. . .no

If there is no internal wiring, it usually is the schools responsibility to provide it. Buildings already wired should be checked by the cable company to be sure the amplifiers will be adequate.

. . . . . .Video Tape Players

Format	Make & Model	Age & Condition	Location

. . . . . .Video Tape Players/Recorders

Format	Make & Model	Age & Condition	Location

Part II: PRODUCTION EQUIPMENT (Cameras, Lights, Audio, Other)

Type	Make & Model	Age & Condition	Location

GLOSSARY

AGC: Automatic Gain Control. A circuit or device which automatically adjusts output level of an amplifier circuit as the input level varies.

APERTURE: The diameter of the opening of a lens that controls the amount of light reaching the photosensitive surface of the television camera tube.

ASPECT RATIO: The ratio of width-to-height of the TV picture. United States standard is 4 units wide by 3 units high (4:3).

AUDIO: Aural or sound component of the television signal.

AUDIO HEAD: The electromagnet component of a VTR which records or plays the sound portion on video tape. This component also records and plays the sync track (or control track).

BACK LIGHTING: Lighting directed from above and behind onto one or several subjects within a scene to set the subject apart from the background.

BETA: (Betamax) Sony's ½" cassette video format. Industrial porta-pak units play and record on BETA I, the fastest tape speed available to consumers (home units).

BNC: Small video connector useful for quick connections and releases; twist on & off.

BOOM: Long piece of metal piping at the end of which a light or microphone is attached to allow either the mic or light to be positioned over the heads of the talent.

BURN: In a TV camera tube, an image that persists after the camera is turned away from the subject. The photosensitive surface of the tube is "burned" by too much exposure to bright lights.

CABLECAST: To distribute programs (both from broadcasting sources and local original programs) via the community TV system, the coaxial cable.

CAMERA TUBE: An electron tube employed in a TV camera in which a charge density image is formed from an optical image and scanned in a pre-determined sequence to provide an electronic signal. Also called pick-up tube.

CANNON CONNECTOR: A brand of XLR audio jack and plug.

CAPSTAN: Rotating spindle or shaft which draws the tape across the head of a tape recorder at a constant rate of speed.

CARDIOD: One of many possible pickup patterns of a microphone. Sound waves coming to the microphone's rear and sides are rejected, those directly in front of it are received, suggesting a heart-shaped pattern.

CASSETTE: Pre-packaged tape in an enclosed case, differs from open reel (reel-to-reel).

CATV: Community Antenna Television (cable TV).

CCTV: Closed Circuit Television.

CHAMOIS: A soft leather used on special utensils for cleaning video heads.

CHANNEL: A designated group of frequencies set aside for the transmission of particular audio or video information.

CG: CHARACTER GENERATOR: A device which electronically displays letters and numerals on the TV screen.

CLOGGED HEADS: A build-up of the oxide coating of the tape on the video head which can cause noise, break-up, or loss of picture. They can also scratch the tape.

COAXIAL CABLE: Copper or copper-sheathed aluminum wire surrounded by an insulating layer of polyethylene foam, used to carry the TV signals throughout the CATV system.

COLOR BARS: Vertical bars of color generated in the studio as a TV signal. Color bars are used with a 1000 cycle test tone to set up playback machines to match video and audio signals of taped programs with one another.

C-MOUNT: A standard mounting plate for lens of many video and 16mm movie cameras. Both the lens and mounting plate have matching nut and bolt threads.

CONDENSER MIC: A microphone which uses two condenser plates as the element to convert sound waves to voltage variations. The mic requires a power source and is more delicate than dynamic microphones (physically), but a condenser mic will not be as likely to distort with loud sound as a dynamic microphone.

CONTRAST: The degree of difference in tone between white and black, light and dark, areas in a television picture. Ratio between maximum and minimum brightness values.

CONTROL TRACK: A synchronizing signal on the edge of the tape which provides a reference for tracking control and tape speed. Defective control tracks may cause tracking defects or picture jumps.

CONVERTER: A device used to change non-VHF TV signals to standard VHF channels. Used in cable systems with more than twelve channels carried via one cable.

CYCLORAMA: Backdrop of canvas, cloth, or paper around the studio to simulate the broad reaches of distance.

dB: Decibels. Measure of voltage or power. Used when measuring TV signal strength, determining clean or snowy pictures, and also strength, loudness, of audio.

DEPTH OF FIELD: The distance between which the nearest and farthest object may be moved toward or away from the lens and still remain in focus.

DIN: Deutsche Industrie-Norm; German standard for electronic connections. DIN plugs can be 3, 4, 5, or 6-pin plugs, depending on their use. They all have the same outer diameter and appearance.

DISSOLVE: To change gradually from one picture or scene to another by overlapping two images.

DOWNSTREAM: Direction of cable signal from the headend to subscribers.

DROP: The coaxial cable that connects each building or home to the nearest feeder line of the cable network. Also called Tap.

DROP OUT: Small bits of missing picture information usually caused by physical imperfections in the oxide coating of the videotape. (age, wear, manufacture flaw).

DUB: A videotape duplicate or copy. aka DUPE.

DYNAMIC MIC: A microphone which uses the motion of an induction coil through a magnetic field to create a voltage. A dynamic mic does not require a power source and is more durable than a condenser mic, but cannot handle extremely loud sound levels.

EDIT: A selective process by which one deletes material inappropriate to the finished project. There are 3 types of videotape editing: (1) in camera, (2) in person, and (3) electronic. Splicing, a film editing technique, is not used with videotape.

EIGHT PIN: A connector commonly used to link VTR and TV monitor, providing full video and audio connections, one ground, and one lead for each of audio-in, audio-out, video-in, and video-out.

ELECTRONIC EDITING: Electronically reassembling selected sections of source tapes to produce a finished program. There are two types of electronic editing: (1) assemble and (2) insert. Assemble editing places each selected section after the previous one in the desired order. Insert editing changes desired audio or video or both in selected sections of the tape. Electronic editing requires one recorder and one player.

ERASE HEAD: The electromagnet component of the VTR which disarranges prerecorded information allowing new audio or video to be recorded on "clean" tape.

ETV - Educational Television: Also ITV or instructional television. Terms used interchangably for non-commercial broadcast TV for classroom use.

f CONNECTOR: A screw-on connector primarily used for coaxial cable. (ie. antenna wall connection).

F-STOP: A control ring which can be adjusted to vary the size of the lens aperture. The smaller the F, the more light enters the camera. Each stop is numbered.

FADE: A gradual transition during which the picture goes to or comes "up" from black.

FIELD: Half of a complete picture or frame. A field contains either all of the odd or all of the even scanning lines of the picture. US television runs 60 fields (30 frames) per second.

FILM: Result of chemical development and processing to produce product requiring film projector and screen to view.

FILM CHAIN: A system using a single camera, multiplexer, and one or more projectors to insert film or slides into TV programs. A conversion is necessary because film runs at 24 frames/second and TV at 30 frames/second.

FIRST GENERATION: The original recording of a taped segment. The first time a signal is recorded on a tape, that tape is called the first generation. Each subsequent recording of the already recorded segment will be one generation removed. (2nd, 3rd).

FOCUS: The greatest possible resolution of an object when the object seems to be sharp and well defined. The act of moving the lens to make the image sharp and defined, to bring the light ray to its minimum size.

FOLLOW FOCUS: The continued adjustment of the lens to keep an object in focus as either object, camera, or both are moving.

FRAME: (1) Electronically, one complete television picture (1/30th of a second long). Two interlaced fields. (2) The composition of the picture content (area of sight).

FRANCHISE: Contractual agreement between CATV operator and governing municipal authority. A license to build and operate the cable system.

FRICTION HEAD TRIPOD: The camera mount consists of two metal plates: the lower stationary, the upper rotating. It generally does not provide smoothe camera movement, but more expensive models use ball-bearings to offset the problem.

GENERATION: The number of times a dub is removed from the original (1st gen.) master videotape. (see "First Generation").

HARDWARE: The equipment involved in production, storage, distribution, or reception of electronic signals. The headend, the coaxial cable network, amplifiers, TV receivers, and production equipment like cameras and VTRs.

HEADEND: CATV electronic control center - generally located at the antenna site of the cable system - which amplifies, filters, and converts incoming broadcast TV signals to cable system channels.

HEAD CLOGGING: Occurs when the gap of a video head is filled with dirt, grease, or oxide so it can no longer record or play back a signal; cured by cleaning the heads.

HEAD DRUM: The large circular unit around which the tape wraps as it passes the video heads. The video heads spin inside the drum so as to contact the tape through the slot in the drum assembly.

HELICAL SCAN: The method of recording video signals on tape which records the signal in adjacent stripes diagonally on the tape. The name is derived from the fact that the tape travels in a spiral path around the head drum.

IN CAMERA EDIT: Original assembly of sections of program by starting and stopping the VTR to delete inappropriate material. In camera edits are not electronically stable. Since the tape must get "up-to-speed" from pause, the sync track is interrupted.

IN PERSON EDIT: During playback of a tape, the inappropriate material is deleted by use of the fast forward controls. In person editing is not useful if smooth transitions are desired or one is not familiar with start/stop points of program content.

INTERCONNECT: To link CATV headends, usually with microwave, so that subscribers to different cable systems can see the same programming simultaneously.

IRIS: The adjustable aperture which controls the amount of light entering a lens.

JACK: A metallic connecting device into which a plug may be inserted for electronic linkage of equipment cables.

JVC - Japanese Victor Corp: Manufacturing & sales subsidiary of Matsushita Electric Corp.

LAG: Smears or "comet tails" in bright areas of the pictures; image retention of the camera tube (most in low light conditions).

LO - LOCAL ORIGINATION CHANNEL: Programmed by the cable operator with material other than broadcast signals and under the operator's exclusive control.

MASTER: The original recording of tape (first generation).

MASTER ANTENNA SYSTEM: Antennae arranged to pick up television signals and feed them to an amplifier and distribution network, providing optimum signals to multiple locations within a single building.

MINI CONNECTOR: An audio jack or plug resembling, but smaller than, a ¼" Phone Connector.

MIXER: Any device used to combine audio, video, or RF signals while maintaining an impedance (resistance) match.

MODULATOR: The electronic equipment which combines video and audio signals and converts them to radio frequencies (rf) for distribution on a cable system.

MONITOR: Display of the video signal; a television screen.

MOIRE': The effect produced when one frequency is superimposed over another one. When someone wearing pinstripes appears on camera, the suit may flicker and show larger stripes of light and dark. False colors or a rainbow effect can be produced.

MULTIPLEXER: A device which provides the mixing of several program sources optically, such as film or slide projectors for pick up by a single camera (see film chain).

OFF-AIR. Reception of a television signal that has been broadcast through the air.

PAN: To pivot the camera left or right from a single location so as to follow a particular character or photograph an entire scene.

PATCH CORD: A cable with a jack at each end used to connect audio or video components.

PAY TV: A system of scrambled signals that can only be unscrambled by special equipment for which the viewer must pay a fee. Also cable channels available only for extra subscriber fees.

PERSISTENCE OF VISION: The human phenomenon which makes the system of television possible; the retention by the eye's retina of any image it sees for a short period of time. If the image is replaced by a slightly different image before the first image fades, the distinction between the two separate images is lost and motion is perceived.

PHONE CONNECTOR: A ¼" diameter cylindrical jack with marching plug used for audio.

PHONE CONNECTOR - RCA CONNECTOR: Audio jack & plug often seen on hi fi equipment; the central pin of the jack is surrounded by four tension clips to hold the connection. Some VTRs use RCAs for video connections, particularly home units.

PORTAPAK: A Portable videotape recorder equipped to operate on AC power or using batteries on remote locations.

PUBLIC ACCESS: The right of the general public to express themselves using the medium of television. Public Access channels are those provided free on a first-come, first-serve basis for non-commercial use by the public, usually on cable systems.

PUBLIC TELEVISION: Noncommercial broadcast television. TV programming provided via the Corporation for Public Broadcasting (CPB) and its affiliates.

RADIO FREQUENCY (RF): A frequency used for radio transmission; generally any frequency above 20,000khz.

RF UNIT: A modulator unit provided in some VTRs allowing monitoring of recording or playback of signal through any television set (via antenna input).

ROLL: Vertical flipovers of the picture. Also the command to start the recorder.

SAFE TITLE AREA: 80% of the TV screen, from the center, which will reproduce legible title credits no matter how the set is adjusted.

SEG - SPECIAL EFFECTS GENERATOR: A device providing combinations of images on the television screen from two or more video inputs. Special effects include wipes, dissolves and fades.

SKEW: The tape tension between supply reel and first rotary idler of the tape path around the head assembly of a VTR. Skew problems appear as bending or hooking at the top of the monitor screen.

SNOW: A pattern of snowlike flakes appearing on a TV screen as a result of weakened signals in a receiver or heavy random electrical noise in the area.

SOFTWARE: Programming and program materials such as film, videotape, slides, etc.

STOP DOWN: To close "down" a lens, adjusting the aperture/iris so less light passes through the lens. Stopping "down" sets the lens to the higher f-stop number.

SUBSCRIBER: Anyone who pays the CATV reception (via cable service).

SWITCHER: Any device permitting the selection of a particular camera's picture when more than one camera is being used. May include an SEG.

SYNC: A pulse included in the signal for TV which provides a synchronizing reference for each frame and scanning line of the picture. Defects in this pulse may cause jumping, rolling, or breakup of the picture.

TALENT: Those appearing before the camera, regardless of their skills.

TELECINE: A motion picture projector and TV camera set up to convert film images to video signals while also converting the 24 frames per second film to 30 frames per second television.

TELEVISION CHANNEL: A band of frequencies, 6 megacycles wide, designated by a number or by the extreme upper and lower frequencies, which is assigned for television transmission.

TILT: A vertical camera movement, either up or down, where the camera pivots on a center point.

TRACKING: The process by which the video head on a playback machine follows exactly the same path as the video head that recorded the signal. Bad tracking appears as picture breakup or loss of video in segments of the picture.

TRANSMITTER: The TV equipment needed to generate, modulate, and transmit television signals through space from an antenna for TV reception within a predictable area.

TRUCK: Lateral movement of the camera (and camera person) to change shooting angle.

UHF CONNECTOR: The "barrel" connector for video cables. Screw barrel of the plug around the threaded jack.

UHF FREQUENCIES: Ultra-High Frequency - From 300 to 3,000 mhz. In TV, channels 14-83.

UPSTREAM: Direction of cable signal from the subscribers to the head end.

VCR: Video Cassette Recorder; records & plays tapes in enclosed cases (cassettes).

VHF FREQUENCIES: Very High Frequency - From 30 to 300 mhz. In TV channels 2-13.

VHS: Video Home Systems - ½" video cassette format; Panasonic & JVC.

VIDEO: The visual components of the television signal.

VIDEO HEAD: The electromagnet component of a VTR which records or plays the visual portion on video tape. In helical scan VTRs, the video heads spin through a slot in the head drum.

VIDEO TAPE: Plastic tape coated with oxide used to electronically record sight and sound, available for immediate playback. Formats include cassette or reel-to-reel. Tape sizes available are two-inch, one-inch, three-quarters, half-inch and sometimes one-quarter inch.

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VIDEOT: Video junkie - Identified by glassy gaze from vidicon tube eyes and an insatiable need to consume raw footage and spew out edited programs. Longingly gawks at equipment catalogs while dreaming of future projects.

VIDICON: A vacuum tube capable of changing light images into electrical voltage variations corresponding to the brightness of those images; a particular type of cathode ray pickup tube used in some video cameras. The least expensive and most generally reliable pickup tube presently available.

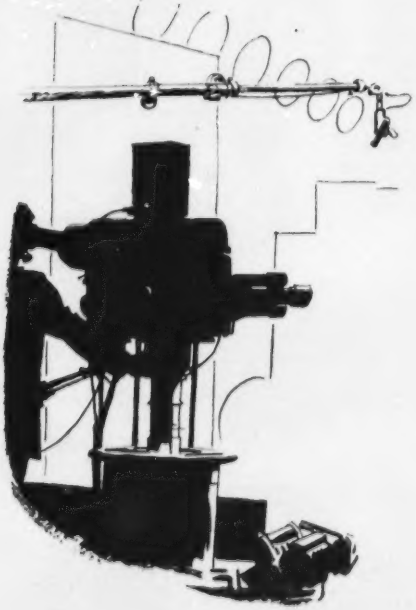
VOLUME UNIT METER (VU Meter): A meter generally associated with the monitoring of the amplitude of an audio signal.

VTR (Video Tape Recorder): The videotape recording and playback machine.

WIDE OPEN: Descriptive of a lens set at its lowest f-stop rating so that the iris is opened as widely as possible.

XLR CONNECTOR: A 3-pin audio connection; most secure and most expensive.

ZOOM LENS: A lens with a variable focal length; a lens whose angle of view can be changed without moving the camera.



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Associations of Interest

Cable TV Bureau, Federal Communications Commission. 2024 M. Street NW, Washington, D.C. 20554.

Community Telecommunications Service, United Church of Christ. 105 Madison Ave., Suite 921, NY, NY 10016. (212-683-3834)

National Citizens Commission for Broadcasting. P.O. Box 12038, Washington, DC 20005 (202-632-6480)

National Federation of Local Cable Programmers (NFLCP). National Office: 906 Pennsylvania Ave., S.E., Washington, DC, 20003. Membership: 3700 Far Hills, Kettering, OH 45429.